

# Extra-Genital Screening for STDs: If You Just Check The Pee, You'll Miss GC and CT

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# Disclosures

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No conflicts of interest or relationships to disclose.

# Outline

- Overview of the STD epidemic today
- Review of sexual history taking
- STD screening recommendations
- Rationale for extra-genital screening
- Self-testing and program implementation

# Why Diagnose and Treat STIs?

- >19 million STDs in U.S. annually
- Health consequences of untreated STDs
  - Women's reproductive health
    - Untreated chlamydia or gonorrhea may lead to pelvic inflammatory disease (PID) & other consequences
    - Leading infectious cause of infertility in the U.S.
    - Trichomoniasis, BV associated with preterm delivery, low birth weight
  - Infant mortality/morbidity
    - Neonatal herpes and congenital syphilis
  - HIV transmission: identifying people who would benefit from HIV pre-exposure prophylaxis (PrEP)
- Health care cost
  - Almost \$16 billion

# At Greatest Risk

- Youth=15-24 year olds
  - 2/3 CT and 1/2 GC cases
- Racial/ethnic minorities
  - STDs among highest of all racial/ethnic health disparities
  - African-Americans
    - Chlamydia: 5.8 times the rate among whites
    - GC: 12.4 times
    - Early syphilis: 5.6 times
- Men Who Have Sex with Men (MSM)
  - Accounted for 82% of syphilis cases in 2015
  - High rates of HIV co-infection (~50%)



# The Current Environment

**STDs at Unprecedented High in U.S.**

**2015 STD SURVEILLANCE REPORT**

**2015 #STDReport**

- Combined cases of chlamydia, gonorrhea, & syphilis at record high
- Young people and gay & bisexual men still at greatest risk
- Prevention requires strong & sustained public health commitment

The graphic includes a small image of the 'Sexually Transmitted Disease Surveillance 2015 STDs' report cover, which shows silhouettes of people in various poses.

## WHY?

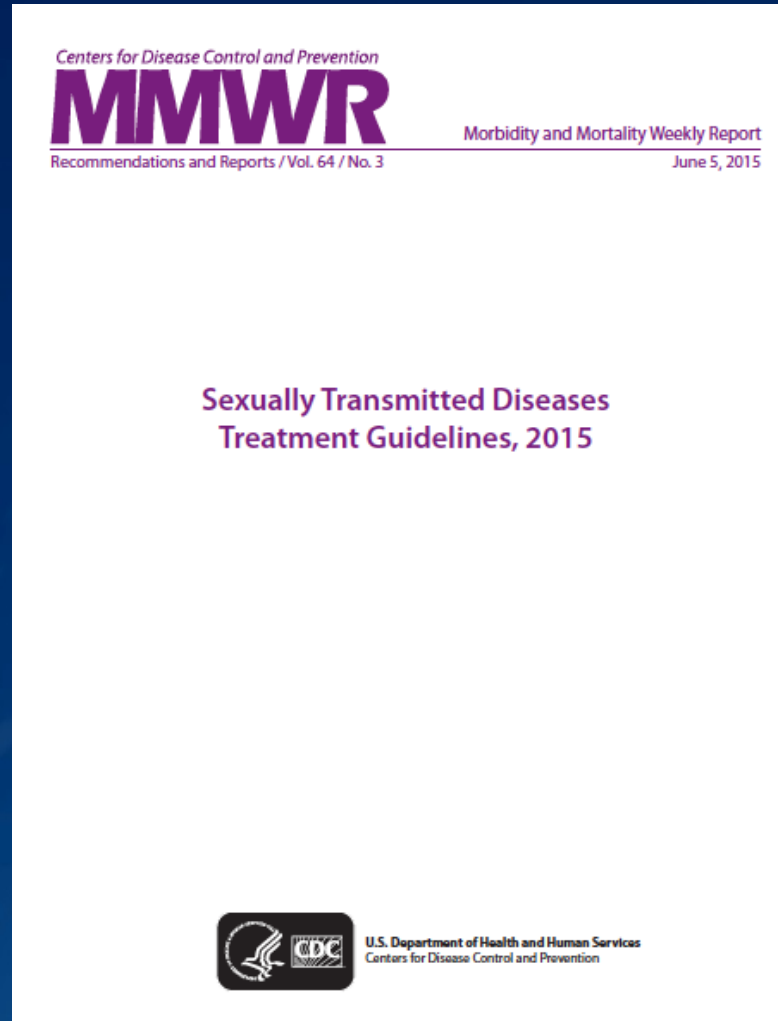
1. Funding cuts to public health infrastructure
  - In 2012, 52% of state and local STD programs had budget cuts
2. Increased diagnosis through enhanced screening
  - Medicaid screening rates 40% in 2001 → 55% in 2014
3. More sensitive tests and increased reporting
4. Dating apps? PrEP?

# STD Prevention: Our Role

- A welcoming environment
- Routine sexual history and risk assessment
- Screen, appropriately
  - Appropriate anatomic sites with recommended tests
  - Alcohol, drug use, tobacco, depression, intimate partner violence
- Assure appropriate vaccination status (HPV, HBV/HAV)
- Prevention messages--condoms, HIV pre- and post-exposure prophylaxis (PrEP, PEP)
- Diagnosis and treatment
- Provide or refer (partner management/ services)
- Report cases in accordance with state and local statutory requirements; keep reports confidential

# New-ish STD Guidelines Available

## June 5, 2015



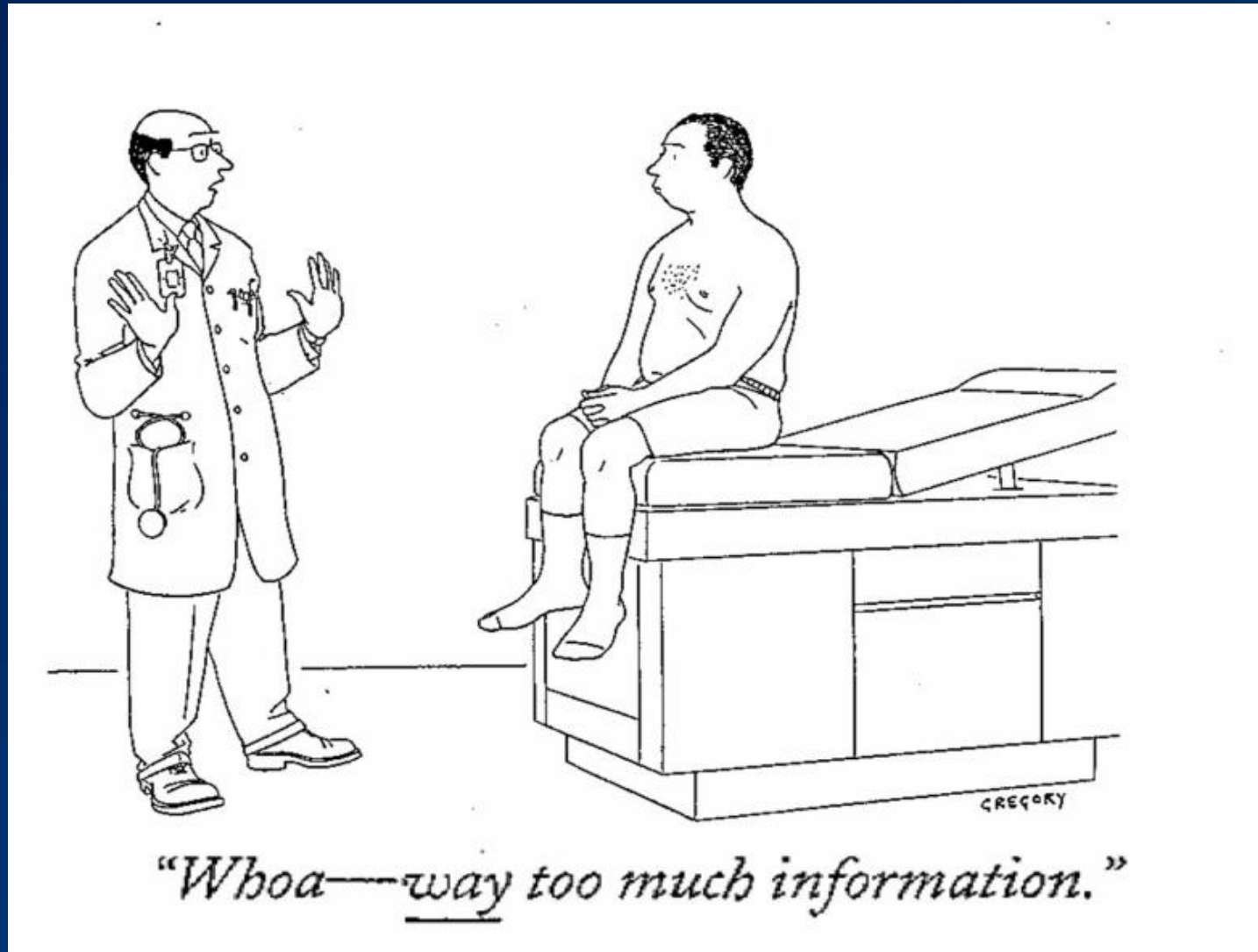
<http://www.cdc.gov/std/>





**(If you) DON'T ASK,  
(They) WON'T TELL...**

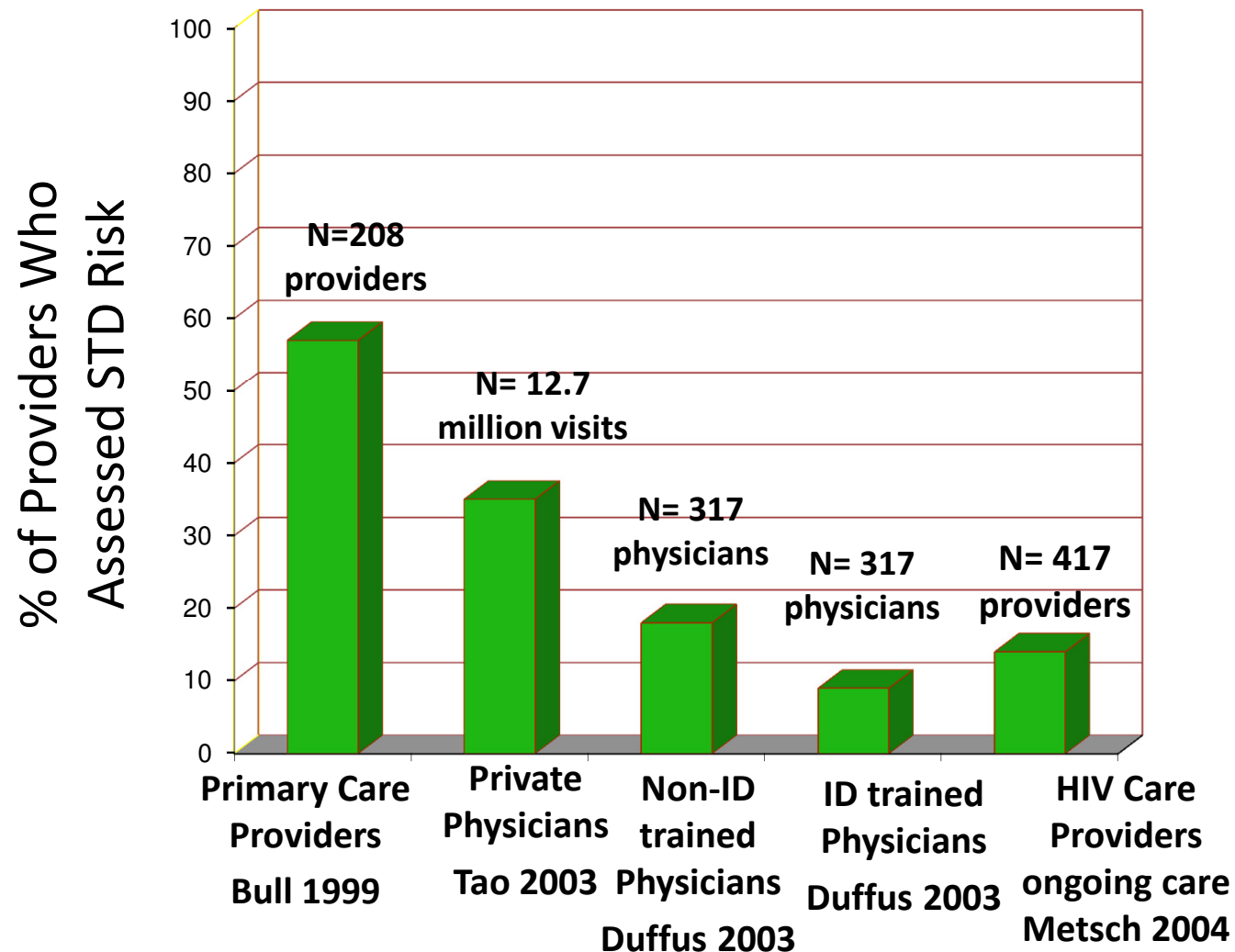
## *STD Screening: Requires asking*



# Are We Doing Sexual Histories Enough?

- Fewer than half of physicians report taking a sexual history from their patients
  - 40% of MDs screened adolescents for sexual activity
  - 15-40% asked questions of adult patients about # and gender of partners and condom use
- Kaiser Family Foundation patient survey
  - 12% women were asked about STDs at a first-time Ob/Gyn visit
  - 83% patients felt STDs should be discussed at a first-time Ob/Gyn visit

# We Can Do Better!



# **What are Barriers to Screening?**

# Barriers to Screening

- Patient-related barriers
  - Want frequent, convenient, affordable testing
- Provider-related barriers
  - Knowledge, Time & Comfort with Sexual Hx/Exam
- Systems barriers
  - Testing costs, insurance issues
  - Lab issues: NAATs not FDA approved

# What to ask...The 5 “Ps”

- Partners
- Practices (Positions?!)
- Protection for STD
- Past history of STD
- Prevention of pregnancy

# The 6th “P”: Prevention

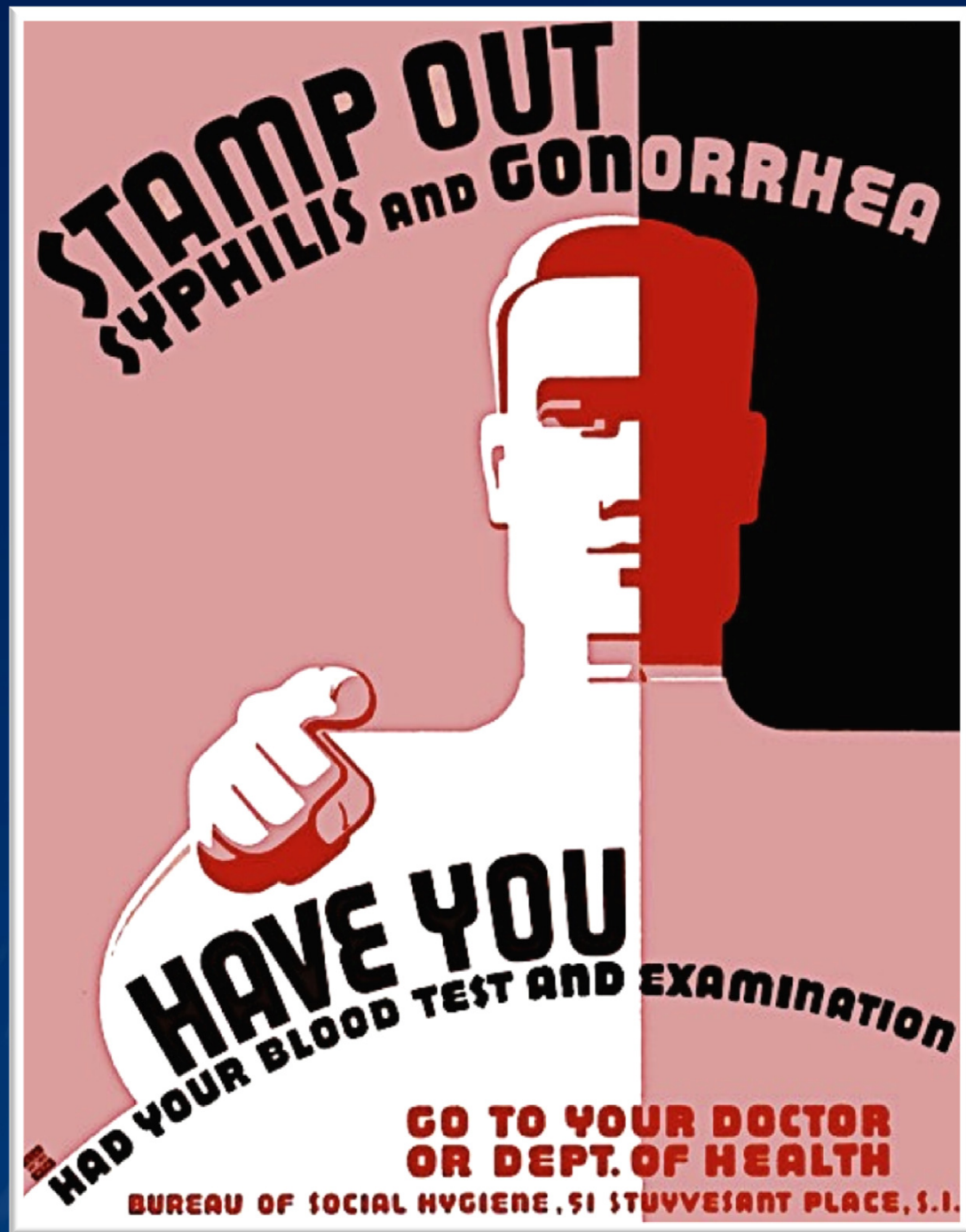
- Have you been vaccinated for Hep A and Hep B?
- Have you been vaccinated for HPV?
- Are you interested in learning more about PrEP?



# “Special” Populations in the Guidelines

- Pregnant women
- Adolescents & Children
- Persons in Correctional Facilities
- MSM
- Women who have sex with women (WSW)
- Transgender Men and Women
  - Screen on basis of anatomy and sexual practices
  - High HIV prevalence
    - 27.7% in all male-to-female transwomen

# **The Ins and Outs of Screening: CDC Recommendations**

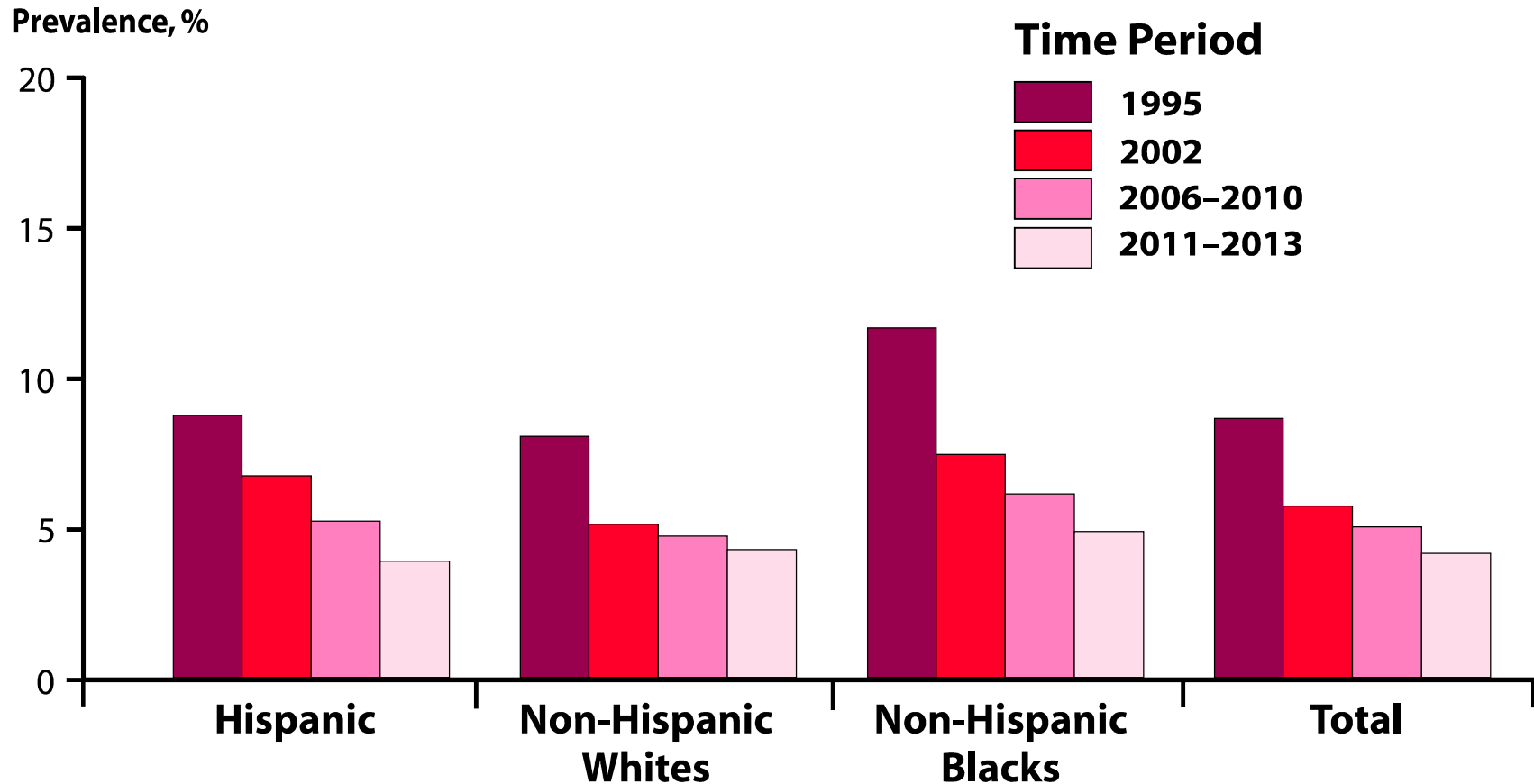


# 2015 CDC Guidelines

## STI Screening for Women

- Sexually active adolescents <25 years of age
  - **Annual chlamydia and gonorrhea screening**
  - Other STIs based on risk
- Women ≥25 years of age
  - STI screening and testing based on risk
- Pregnant women
  - Chlamydia and Gonorrhea (<25 years of age or at-risk)
    - Retest CT in 3<sup>rd</sup> trimester if <25 or high-risk (both GC/CT)
  - HIV
  - Syphilis serology
  - Hepatitis B sAg
  - Hepatitis C (if high risk)
  - Screen for history of genital HSV
    - Serologic screening of asymptomatic women not recommended

# Pelvic Inflammatory Disease — Lifetime Prevalence of Treatment Among Sexually Experienced Women Aged 15-44 Years by Race/Ethnicity and Time Period, National Survey of Family Growth, 1995, 2002, 2006–2010, 2011–2013



SOURCE: Leichter, J, Chandra A, Aral SO. Correlates of Self-Reported Pelvic Inflammatory Disease Treatment in Sexually Experienced Reproductive-Aged Women in the United States, 1995, 2002, and 2006–2010. Sex Transm Dis. 2013;40(5):413–418. Additional data for 2011–2013 provided separately.



# STI Screening in Men who Have Sex with Women (MSW)

- No routine screening in the community
  - Except HIV (USPSTF: age 15-65; CDC: age 13-64) and Hepatitis C (born between 1945-1965)
- CDC says consider screening for:
  - CT in “young men” in adolescent clinics, correctional facilities, and STD clinics or in populations with high burden of infection
  - Hepatitis B if at increased risk (endemic area, MSM, IDU, immunosuppressed)
  - Hepatitis C if born between 1945-1965, IDU, intranasal drug use, unregulated tattoo, remote blood transfusion (before 1992), hemodialysis, HIV

## **Extra-genital Screening: If You Just Check the Pee, You'll Miss GC and CT...**

# What is “extra-genital” testing/screening?

- Testing for STDs at any body site other than genitourinary (urethral/urine/vaginal/cervix)
- Usually refers to rectal and oropharynx
- Typically for gonorrhea and/or chlamydia only
- Routinely done only for men who have sex with men (MSM)



# CDC Recommendations for STI Screening in MSM

- At least annually (more often if multiple or anonymous partners, meth use, recent STI, unprotected anal intercourse)
  - **HIV**
  - **Syphilis**
  - **GC/CT** of all sites at risk (urethral, rectal, pharyngeal)
- Consider:
  - HSV serology
  - HAV, HBV → vaccinate as appropriate
  - HCV (especially if HIV infected)
  - Anal pap?

# Extra-genital Gonorrhea & Chlamydia

- Among MSM, high rates of extra-genital GC & CT
  - Pharyngeal GC: 7.9%<sup>1</sup>
  - Rectal GC: 10.2%<sup>1</sup>
  - Rectal CT: 14.1%<sup>1</sup>
- The majority of infections are asymptomatic
  - 92% of pharyngeal GC & 84-86% of rectal GC<sup>2</sup>

1. Patton, CID 2014 (SsUN data)

2. Morris, CID 2006

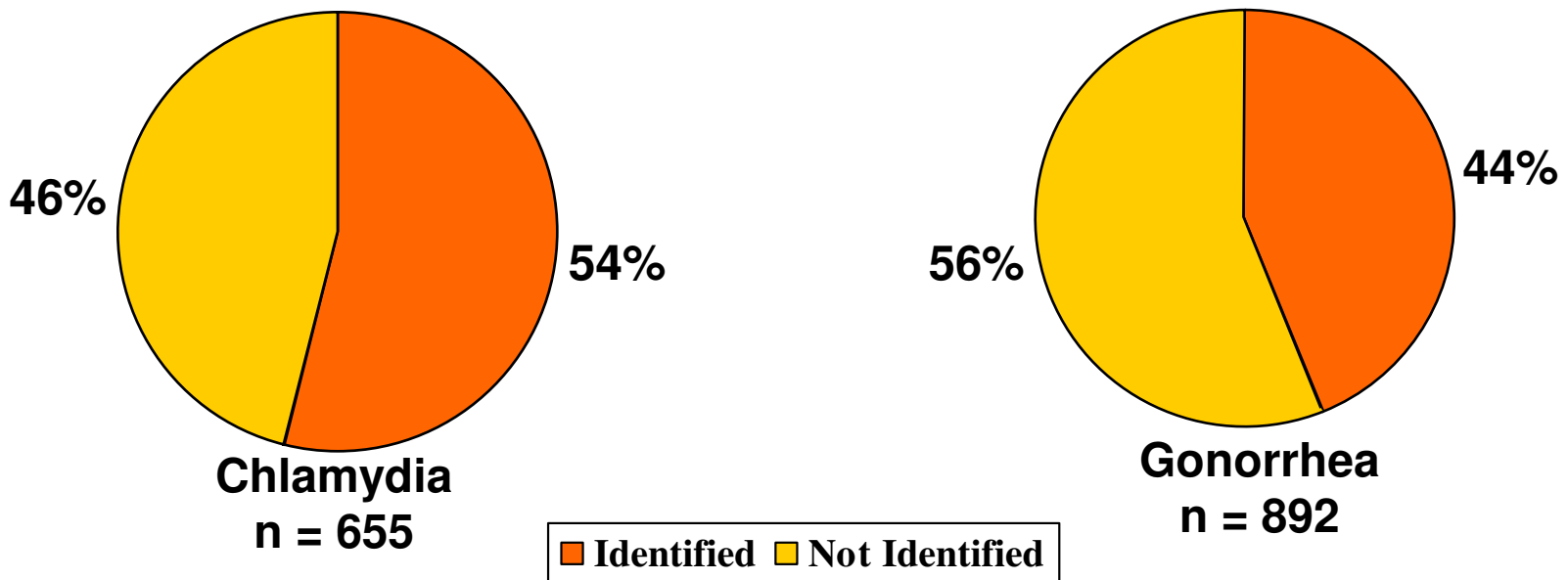
# Their Importance

- Transmission
  - 30% of symptomatic gonococcal urethritis is attributable to oro-pharyngeal exposure<sup>1</sup>
- HIV Transmission
  - Potentiate acquisition, even after controlling for sexual behaviors<sup>2-4</sup>
- Treatment differentials
  - Pharyngeal GC<sup>5</sup>
    - Ceftriaxone > Cefixime
  - Rectal CT<sup>6</sup>
    - Doxy >>> Azithromycin

1. Barbee et al, *STI*, 2015; 2. Vaughan, *BMC Med Res Methodol*, 2015; 3. Kelly, *AIDS Res Hum Retroviruses*, 2015; 4. Jin, *JAIDS*, 1999; 5. Moran, *STD* 1995; 6. Kong, *JAC*, 2015



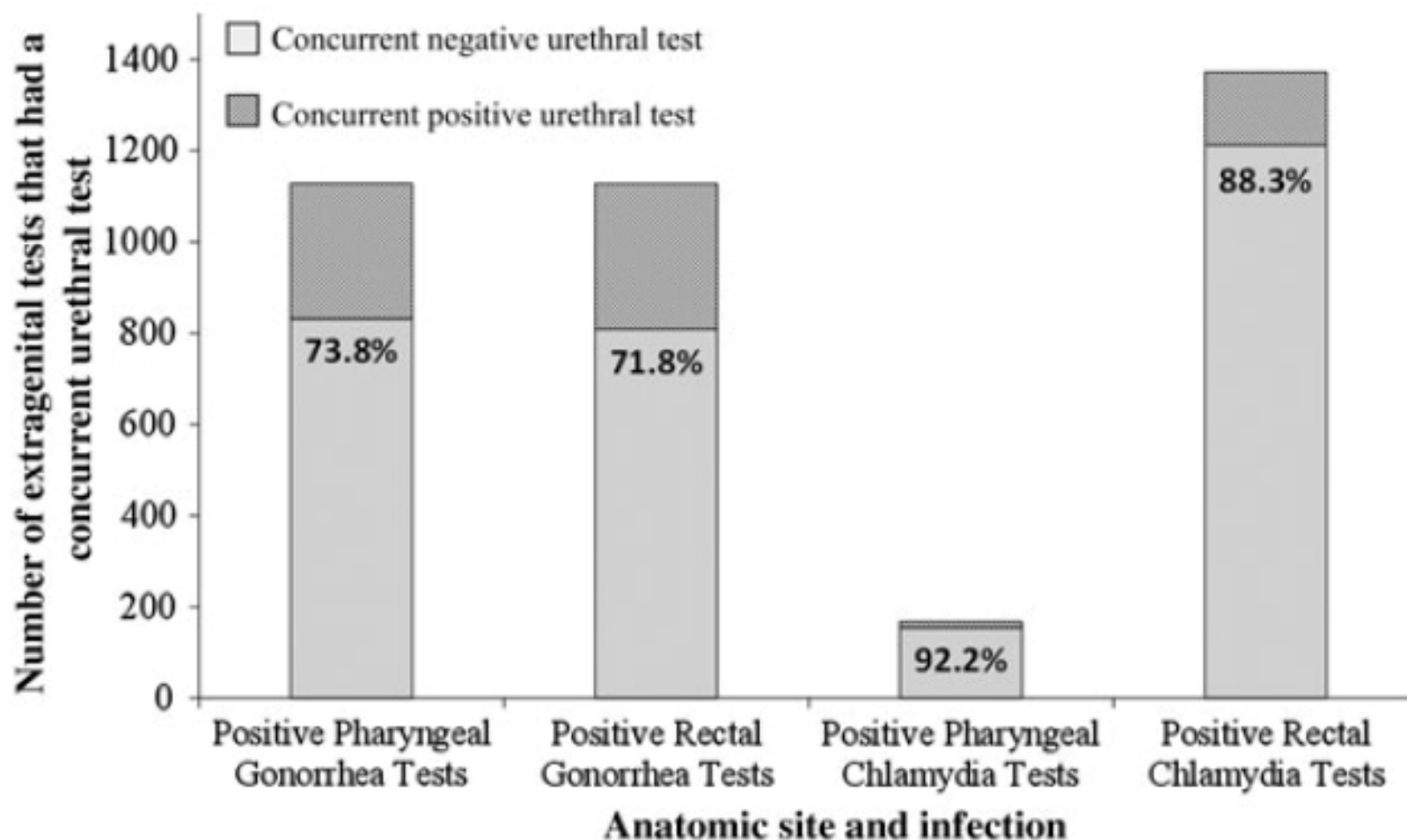
# Rectal and Pharyngeal Infections are Commonly Asymptomatic



***Proportion of infections that would NOT be identified if only urine/urethral screening is performed among gay/bisexual men***

(Kent et al. *CID* 2005 updated)

# Extragenital CT/GC in MSM in the STD Surveillance Network, 2010-2012



# And yet, we still are not doing enough extra-genital screening!

- Of 21,994 MSM seen at 42 STD Clinics:
  - 83.9% tested for urogenital GC
  - 81.4% for urogenital CT
  - 65.9% for pharyngeal GC
  - 31.7% for pharyngeal CT
  - 50.4% for rectal GC
  - 45.9% for rectal CT

# Gonococcal Urethritis



Source: Usatine RP, Smith MA, Mayeaux EJ Jr, Chumley H, Tysinger J:  
*The Color Atlas of Family Medicine*: [www.accessmedicine.com](http://www.accessmedicine.com)

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# Don't forget the triple dip: *STD Screening for MSM*



← Syphilis & HIV  
serology

← Pharyngeal GC

← Urine GC/CT

← Rectal GC/CT

Annually for all sexually active MSM  
**Every 3-6 months for high-risk MSM**



# STDs predict future HIV Risk among MSM

Rectal GC  
or CT



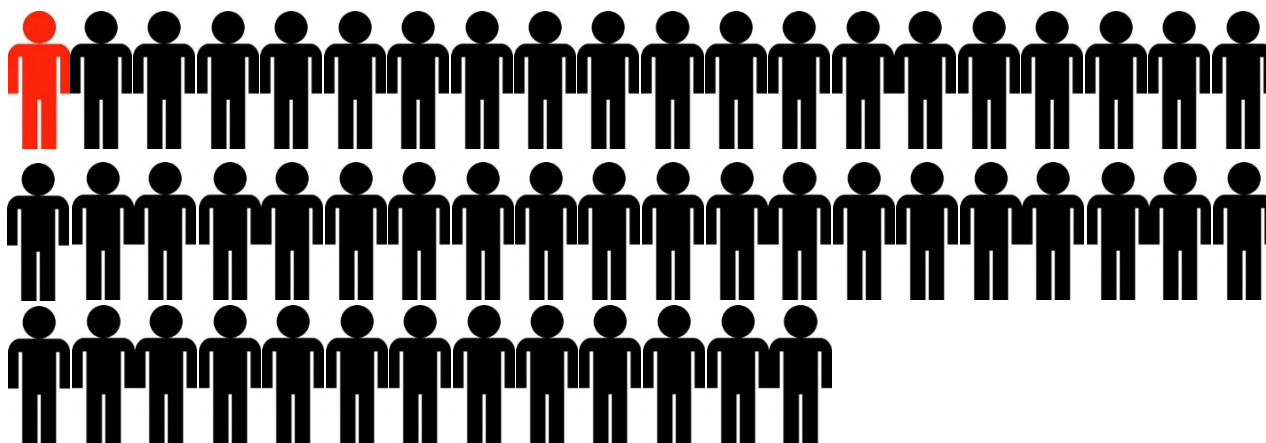
1 in 15 MSM were diagnosed with HIV within 1 year.\*

Primary or  
Secondary  
Syphilis



1 in 18 MSM were diagnosed with HIV within 1 year.\*\*

No rectal STD  
or syphilis  
infection



1 in 53 MSM were diagnosed with HIV within 1 year.\*

\*STD Clinic Patients, New York City. Pathela, CID 2013:57;

\*\*Matched STD/HIV Surveillance Data, New York City. Pathela, CID 2015:61

On a related note...

Remember that anyone diagnosed with an STI can be considered for HIV pre-exposure prophylaxis (PrEP)!

**Self-testing: Turns Out Patients are Pretty  
Good at it!  
And They Prefer it.**

# When looking for GC or CT in a woman, what is the best sample to test?

- A. First void urine
- B. Endocervical swab
- C. Vaginal swab
- D. Patient self-collected vaginal swab

# NAAT for GC/CT testing in women

- Sensitivity: vaginal > urine > cervical
- Women can self-collect vaginal swabs for NAAT
- Many women prefer vaginal swab to urine

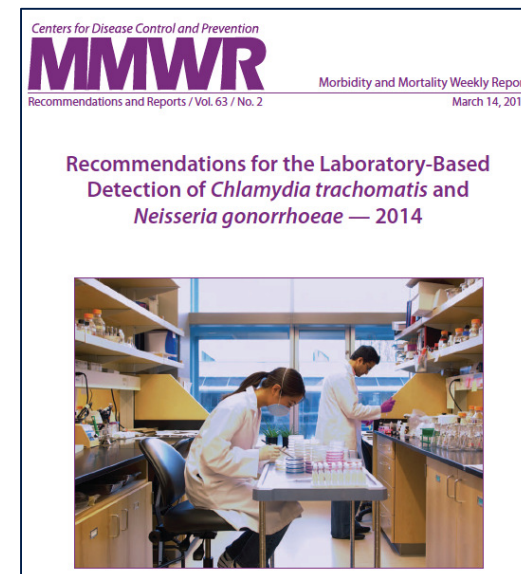
N=1464 women	Clinician-obtained	Patient-obtained
Sensitivity for CT	97.2%	98.3%
Sensitivity for GC	96.2%	96.1%

Schachter J, STD 2005  
Chernesky MA STD 2005



# Chlamydia & Gonorrhea: Diagnostic Testing

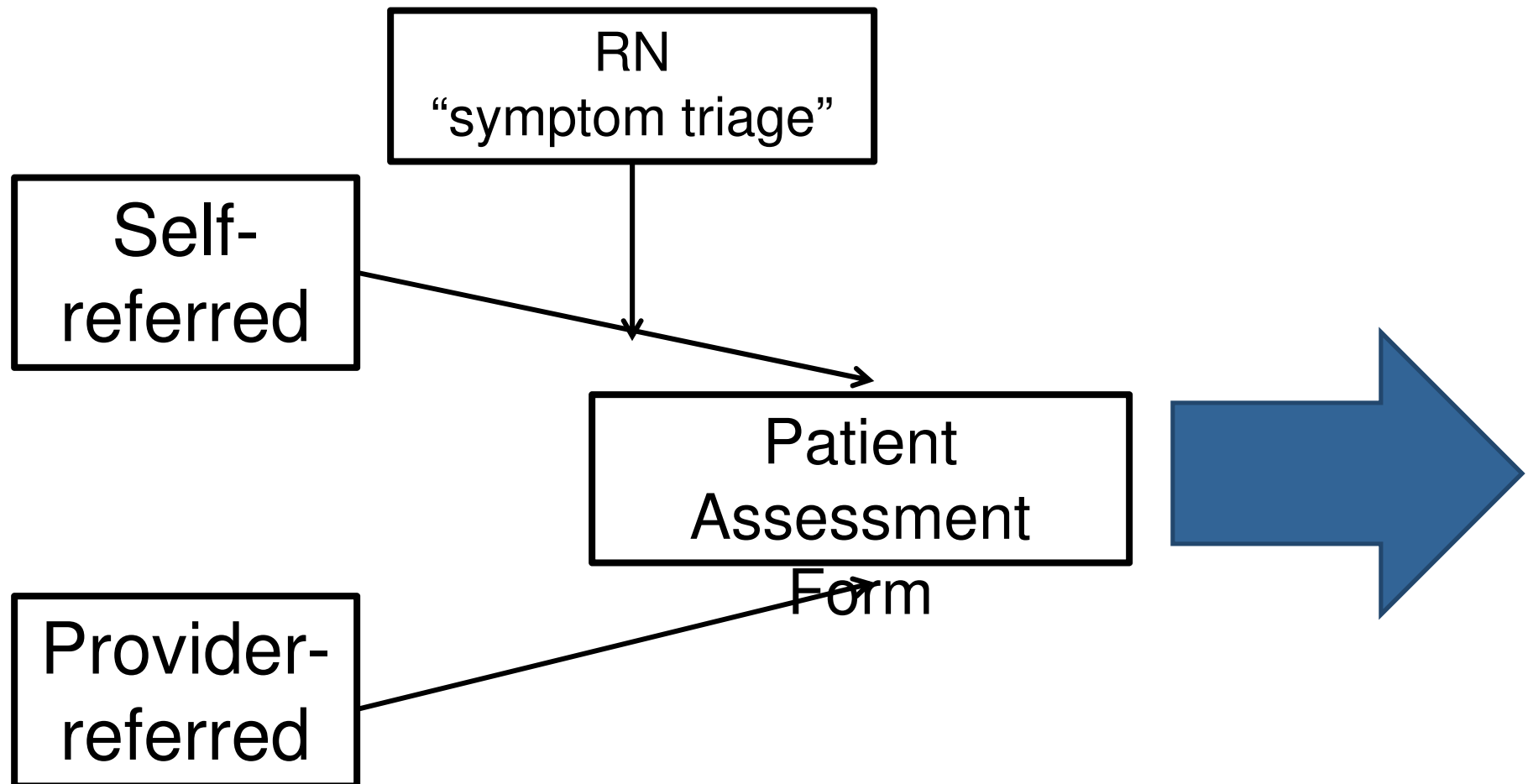
- Nucleic acid amplification tests (NAAT) recommended for men & women
- Optimal specimen: first-catch urine in men and vaginal swabs in women
- NAAT optimal for rectal and pharyngeal testing; not FDA approved but commercially available & validation protocols available
- Cannot perform drug resistance testing on NAAT (need culture if concern)



[http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6302a1.htm?s\\_cid=rr6302a1\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6302a1.htm?s_cid=rr6302a1_w)



# Extra-Genital Self-testing Program at Madison Clinic



## Self-Testing for STIs Patient Assessment


(To be completed by patient)

Congratulations! You are taking a pro-active step in caring for yourself by choosing to test yourself for bacterial sexually transmitted infections today. Please answer the following questions and complete the appropriate STI test(s) based on your answers. Instructions on how-to perform self-testing are in the designated self-testing clinic restroom.

1. *Do you give oral sex (that is, put your sex partners penis in your mouth)?*

☐ Yes

☐ No

 If you answered **yes**, please swab your throat. Follow the instructions on the poster.

2. *Do you top (where you place your penis in your sex partners rectum)?*


☐ Yes

☐ No

3. *Do you receive oral sex (place your penis in your sex partner's mouth)?*

☐ Yes


☐ No

 If you answered **yes to either 2 or 3 above**, please provide a urine sample in the green topped cup.

4. *Do you bottom (where you receive your sex partners penis in your rectum)?*

☐ Yes

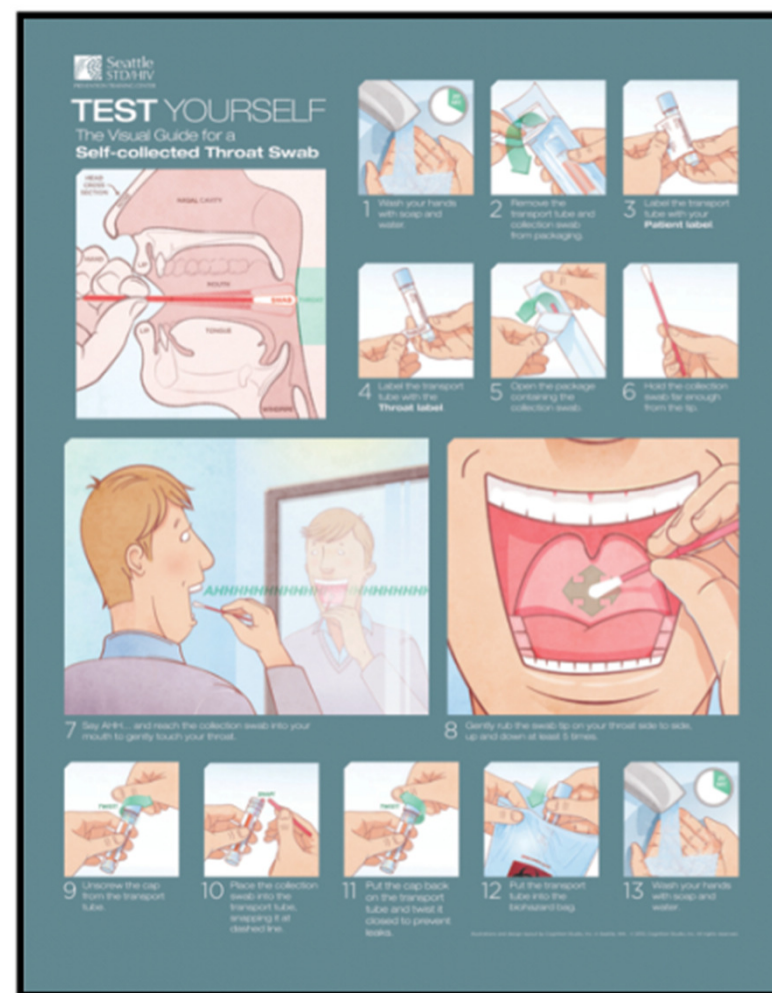
☐ No

 If you answered **yes**, please swab your rectum. Follow the instructions on the poster.

\*\*\*\*\*



# UW STD PTC/Madison Clinic Self-Testing Program



Email [aradford@uw.edu](mailto:aradford@uw.edu) for free posters for your clinic/facility  
NOW AVAILABLE IN SPANISH



# Self-testing increases rates of GC/CT screening!

	Baseline N= 1520	Intervention N= 1510	% change	p-value*
<b>Any site GC/CT</b>	670 (44.1%)	770 (51.0%)	+15.0%	0.001
<b>Pharyngeal GC/CT</b>	444 (29.2%)	586 (38.8%)	+32.0%	<0.001
<b>Rectal GC/CT</b>	390 (25.7%)	520 (34.4%)	+33.3%	<0.001
<b>Urethral GC/CT</b>	510 (33.6%)	697 (46.2%)	+36.7%	<0.001
<b>All three sites</b>	243 (16.0%)	466 (30.9%)	+91.8%	<0.001
<b>Syphilis</b>	962 (63.3%)	976 (64.6%)	+1.5%	0.456

# Self-Reported Behaviors, Testing & GC/CT Positivity at Madison Clinic

Give Oral Sex	Pharyngeal Tests	Pharyngeal GC +	Pharyngeal CT +
348	320* (92%)	32 (10%)	3 (0.9%)

\* 2 tests rejected by lab for labeling or collection errors

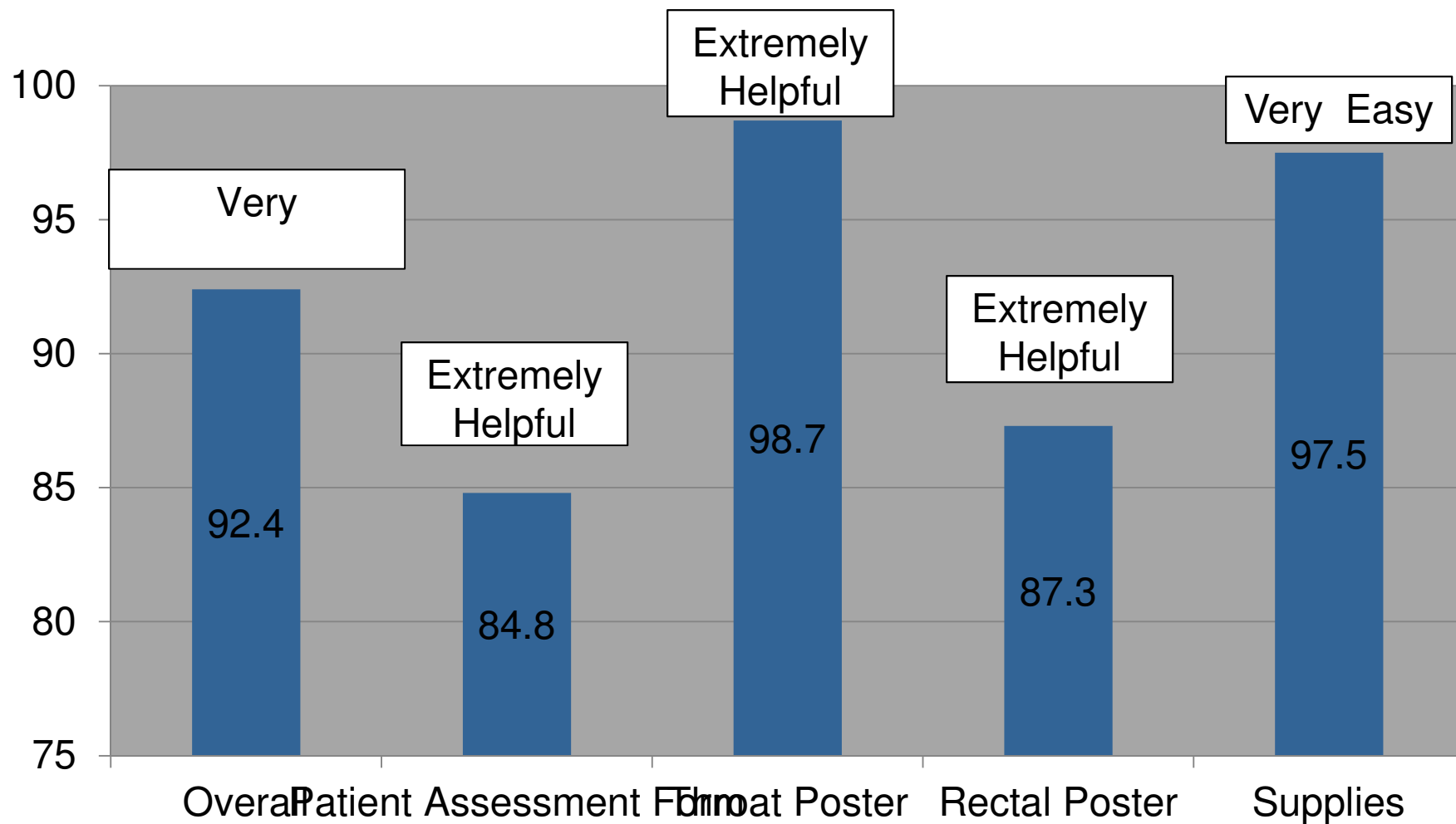
Receptive Anal Sex	Rectal Tests	Rectal GC+	Rectal CT +
312	302* (97%)	33 (10.9%)	28 (9.3%)

\* 2 tests rejected by lab for labeling or collection errors

**Only 269 (77%) Syphilis Test Done!**



# Acceptability of STI Self-testing Program Among 79 MSM Self-testers



# Take-Home Messages

- STDs are at an all-time high with ever-changing epidemiology
  - Highest risk in youth, MSM, and people living with HIV
- Screen appropriately
  - Especially in young women and MSM
- Extra-genital screening in MSM is critical
  - In all orifices used in sex
- Consider self-testing programs



UNIVERSITY OF WASHINGTON  
STD Prevention  
Training Center

STD Clinical Update  
October 19<sup>th</sup>, 2017  
University of Minnesota

**9 am – 5 pm**

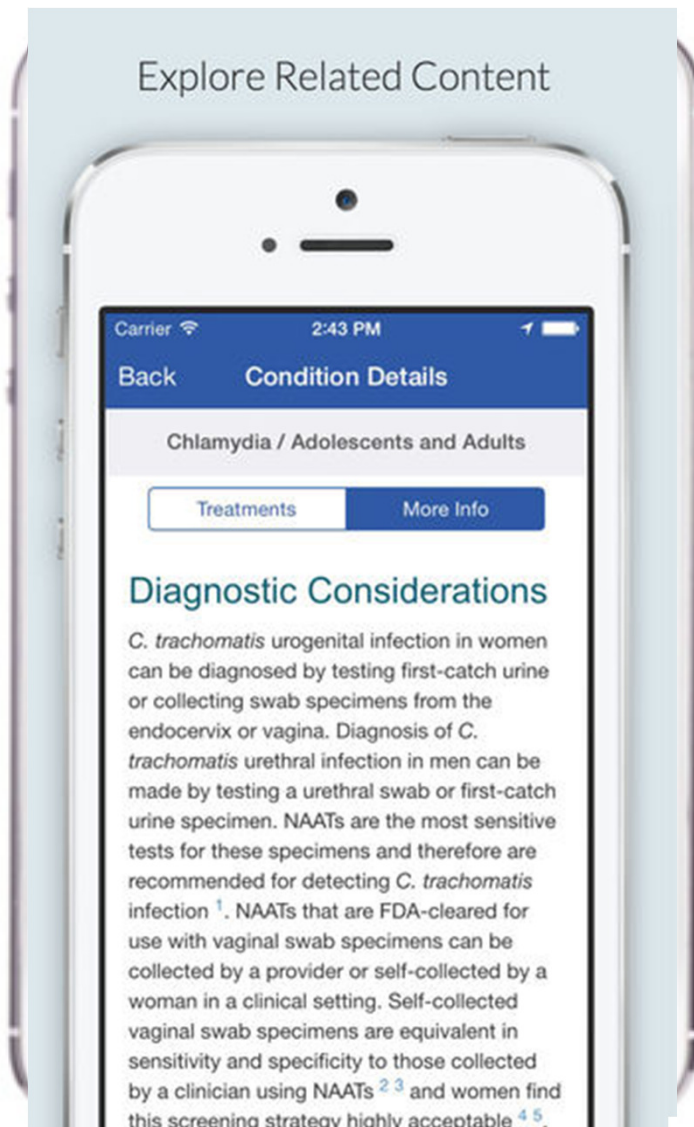
**\$150** (includes CME/CNE and lunch)

[uwptc.org](http://uwptc.org)

[uwptc@uw.edu](mailto:uwptc@uw.edu)



Want to know more about STDs?  
*There's an app for that.*



CDC Treatment  
Guidelines App for Apple  
and Android

Available from  
<https://itunes.apple.com/us/app/std-tx-guide/id655206856?mt=8>

(Search for “STD Tx”)



Or download it like the cool kids...





# Want to know more about STDs?

*There's another app for that.*



- FREE app for Apple
- Features current STD Treatment Guidelines
- News Section with latest articles/updates
- Training schedules for free CME

# STD Clinical Consultation Network (STDCCN)

- Provides STD clinical consultation services within 1-3 business days, depending on urgency, to healthcare providers nationally
- Your consultation request is linked to your regional PTC's expert faculty
- We are just a click away! [www.STDCCN.org](http://www.STDCCN.org)



National Network of  
STD Clinical Prevention  
Training Centers

**STD Clinical Consultation Network**

**Important for Requestors to Consider**

The Clinical Consultation Service is intended for licensed healthcare professionals and STD program staff. We do not provide direct medical care, treatment planning, or medical treatment services to individuals.

The information provided through the Clinical Consultation Service is not a replacement for local expertise or your state STD program protocols. Information is offered as clinical decision support, is advisory in nature and is not intended to replace local healthcare decision-making or provision. Requestors are free to disregard any advice offered. Final clinical decisions are the sole responsibility of the healthcare provider.

CONTINUE



# National STD Curriculum

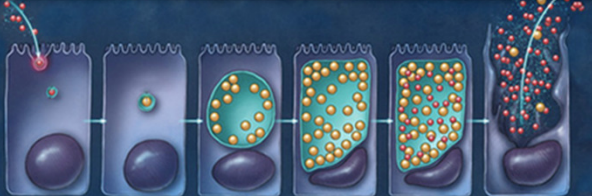
std.uw.edu

National STD Curriculum [Sign In](#)








[CE](#) [STD Modules Self-Study](#) [STD Modules Content View](#) [Question Bank](#) [Master Bibliography](#) [Search](#)

## National STD Curriculum

Funded by a grant from the  
Centers for Disease Control and Prevention

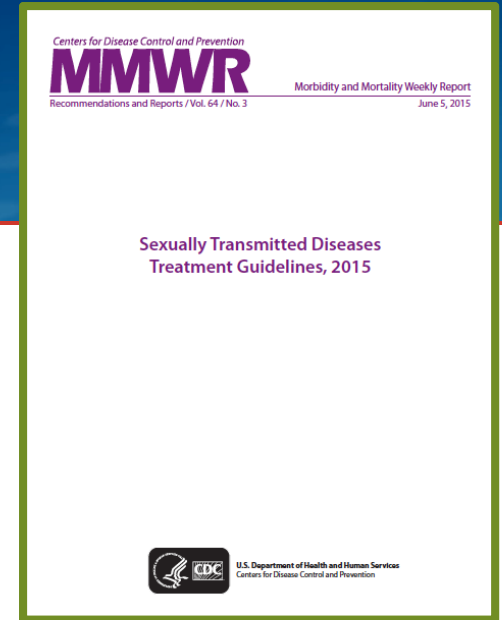


### STD Modules

	<b>Chlamydia</b>	<a href="#">Chlamydia Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of Chlamydia STD Module	<a href="#">Question Bank</a> > Interactive board- review style questions
	<b>Gonorrhea</b>	<a href="#">Gonorrhea Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of Gonorrhea STD Module	<a href="#">Question Bank</a> > Interactive board- review style questions
	<b>HSV</b> Herpes Simplex Virus (HSV)	<a href="#">HSV Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of HSV STD Module	<a href="#">Question Bank</a> > Interactive board- review style questions
	<b>HPV</b> Human Papillomavirus (HPV)	<a href="#">HPV Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of HPV STD Module	
	<b>PID</b> Pelvic Inflammatory Disease (PID)	<a href="#">PID Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of PID STD Module	
	<b>Syphilis</b>	<a href="#">Syphilis Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of Syphilis STD Module	
	<b>Vaginitis</b>	<a href="#">Vaginitis Self-Study</a> <b>CNE/CME</b> Tracking progress and receiving CE credit	<a href="#">Content View</a> > Quick viewing of Vaginitis STD Module	

# STD Resources

- UW STD Prevention Training Center  
[www.uwptc.edu](http://www.uwptc.edu)
- National Network of STD Clinical Prevention Training Centers  
[www.NNPTC.org](http://www.NNPTC.org)
- CDC Treatment Guidelines  
[www.cdc.gov/std/treatment](http://www.cdc.gov/std/treatment)
- American Social Health Association (ASHA) booklets, books, handouts, the Helper [www.ashastd.org](http://www.ashastd.org)  
(800) 230-6039



# Resources

- National Coalition for Sexual Health: A Provider's Guide  
[www.ncshguide.org/providers](http://www.ncshguide.org/providers)
- CDC
  - "A guide to taking a sexual history"  
<http://www.cdc.gov/std/treatment/SexualHistory.pdf>

Any  
Burning  
Questions?

OH, I AM  
SO WORTH  
THE RASH

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# Many Thanks to...

- Jeanne Marrazzo
- Ina Park
- Christine Johnston
- Lindley Barbee
- Shireesha Dhanireddy
- Jill Kesler and Tracy Salameh
- And the many other STD warriors out there...

# Questions to Ponder...

- Are you already doing extra-genital testing?
  - Are you interested?
- Are you already doing self-testing?
  - Are you interested?
- What would you need to do to make this happen in your setting?
  - Training?
  - Electronic health record standing orders?
  - Provider champion?
  - Space issues?

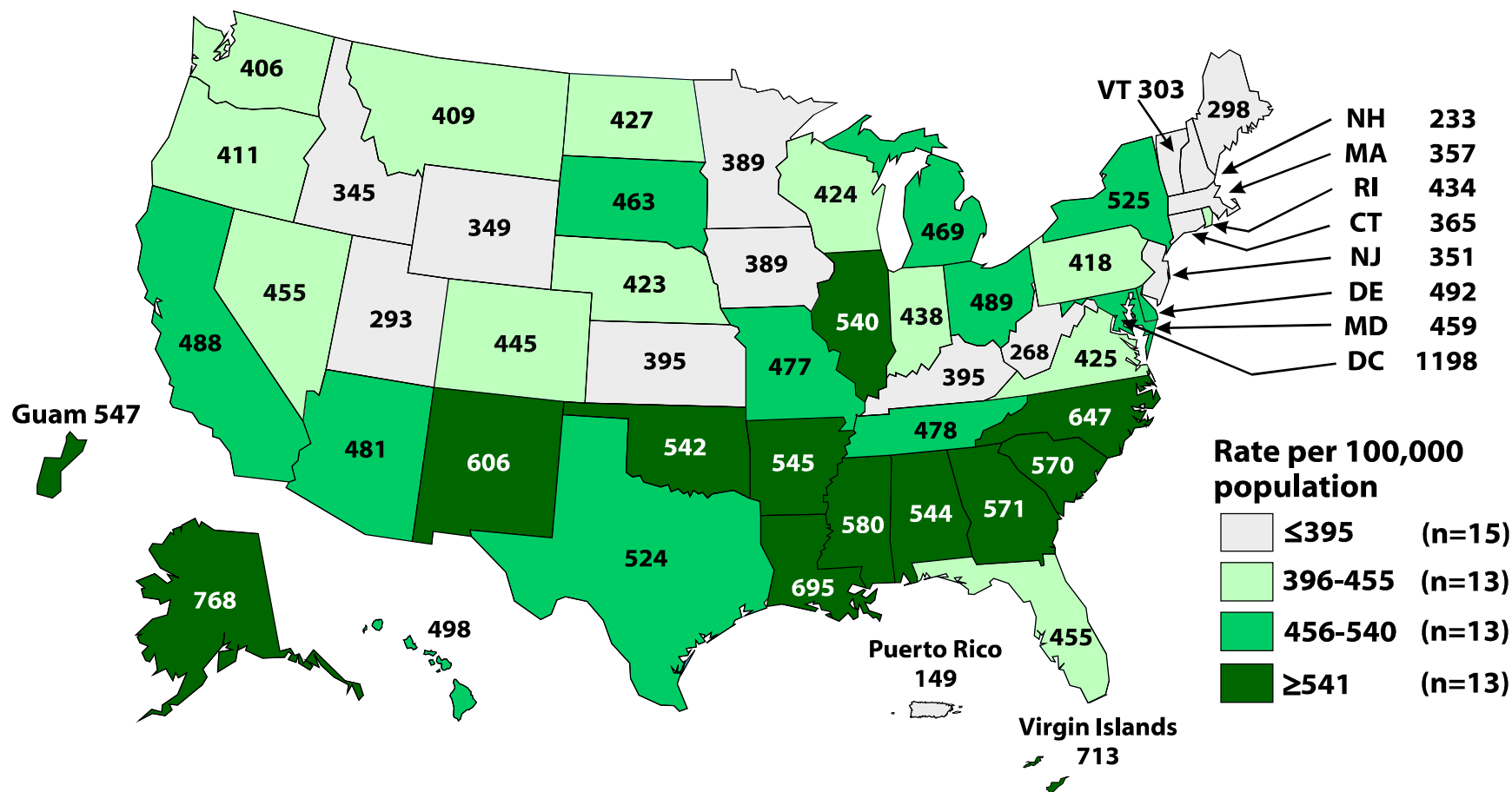




# Epidemiology of GC and CT



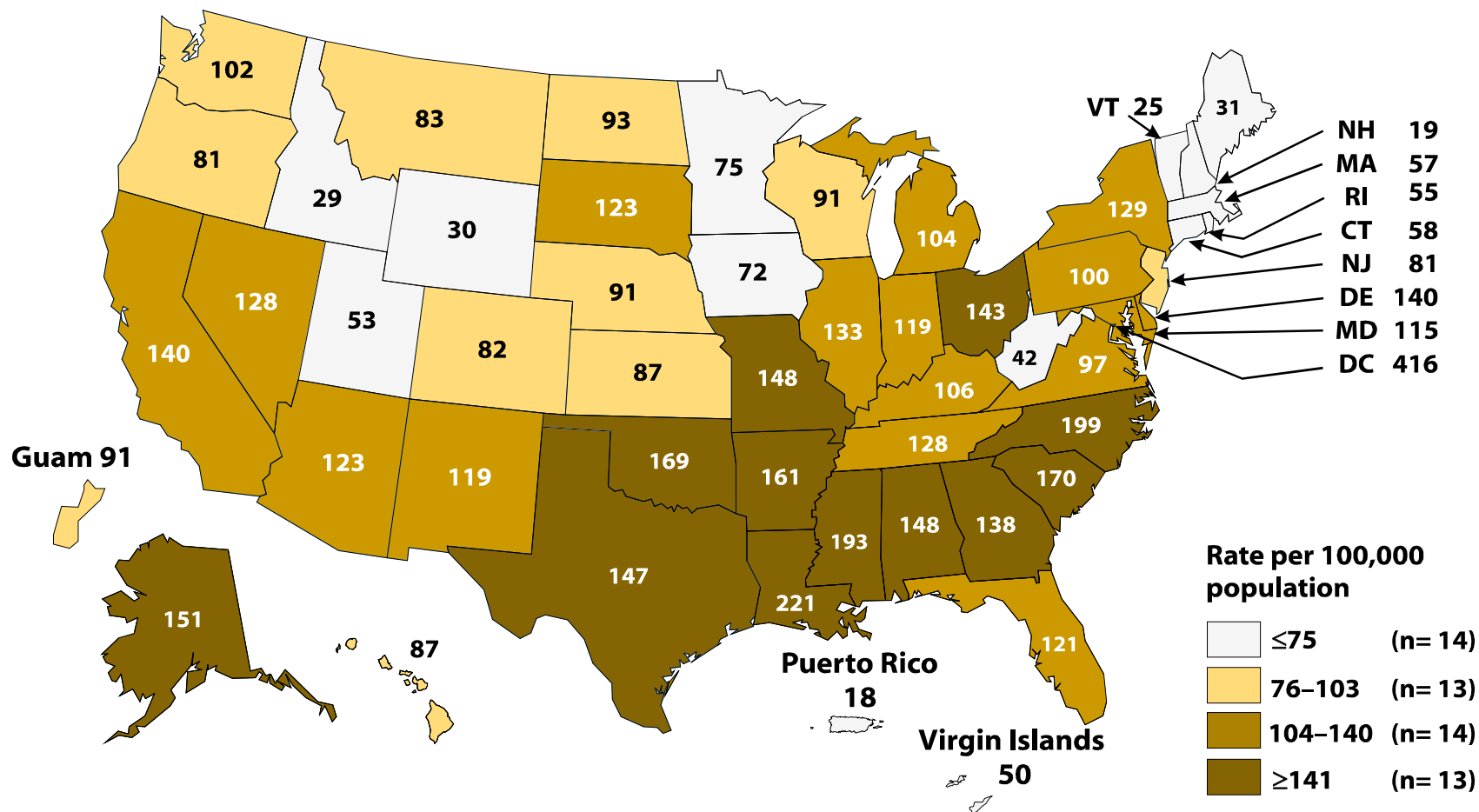
# Chlamydia — Rates of Reported Cases by State, United States and Outlying Areas, 2015



**NOTE:** The total rate of reported cases of chlamydia for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 475.3 cases per 100,000 population.



# Gonorrhea — Rates of Reported Cases by State, United States and Outlying Areas, 2015

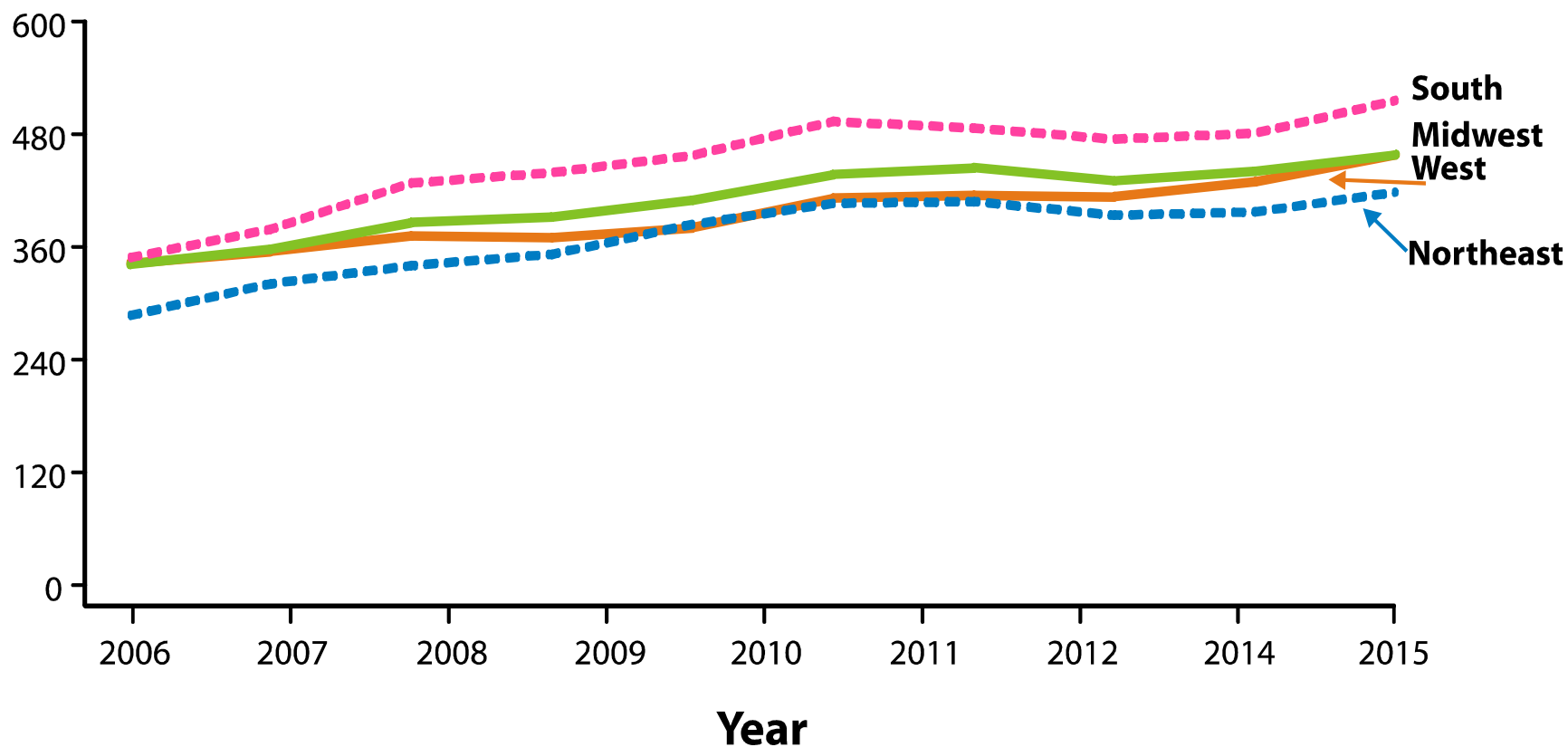


**NOTE:** The total rate of reported cases of gonorrhea for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 122.7 cases per 100,000 population.



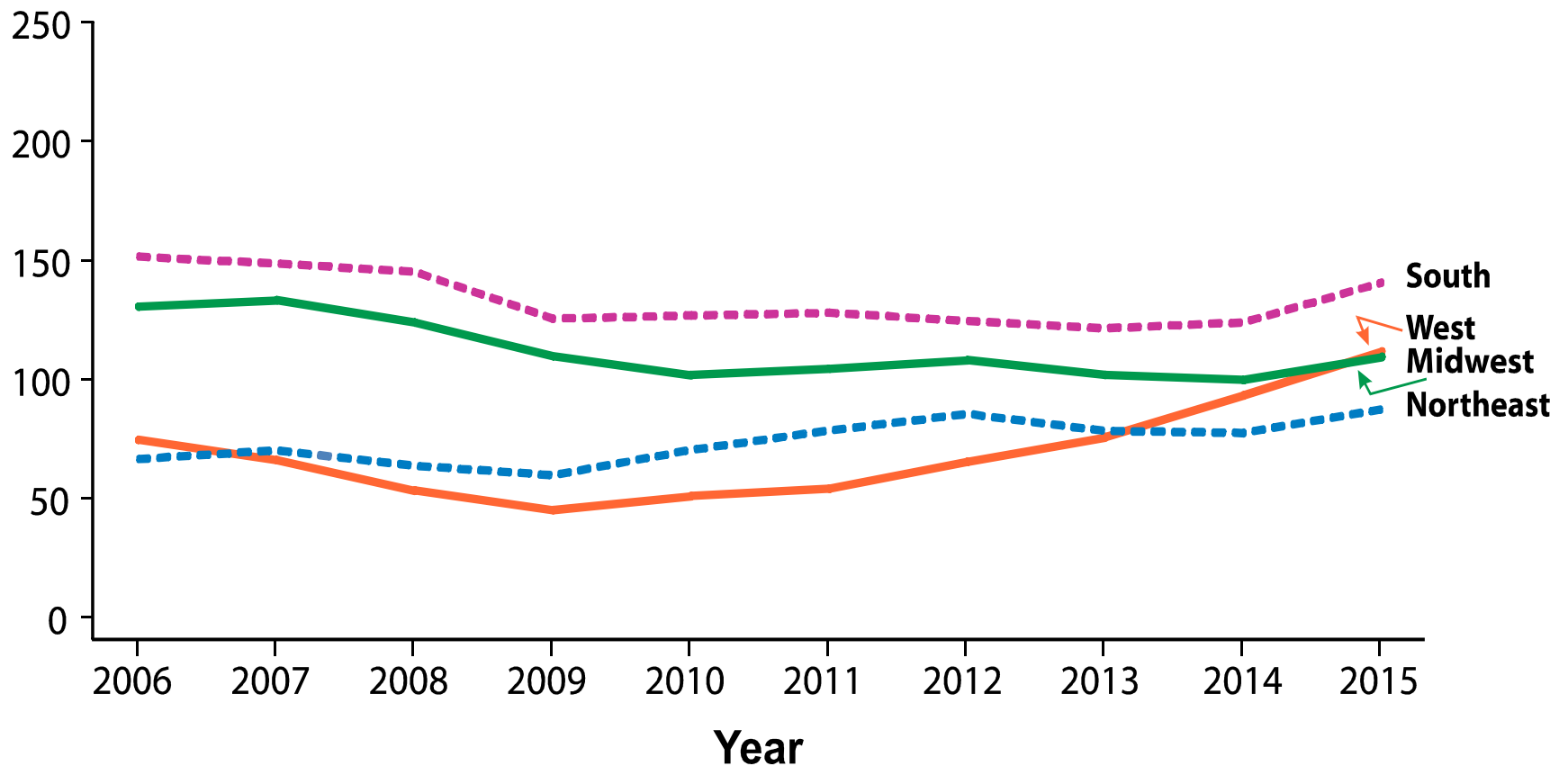
# Chlamydia — Rates of Reported Cases by Region, United States, 2006–2015

Rate (per 100,000 population)



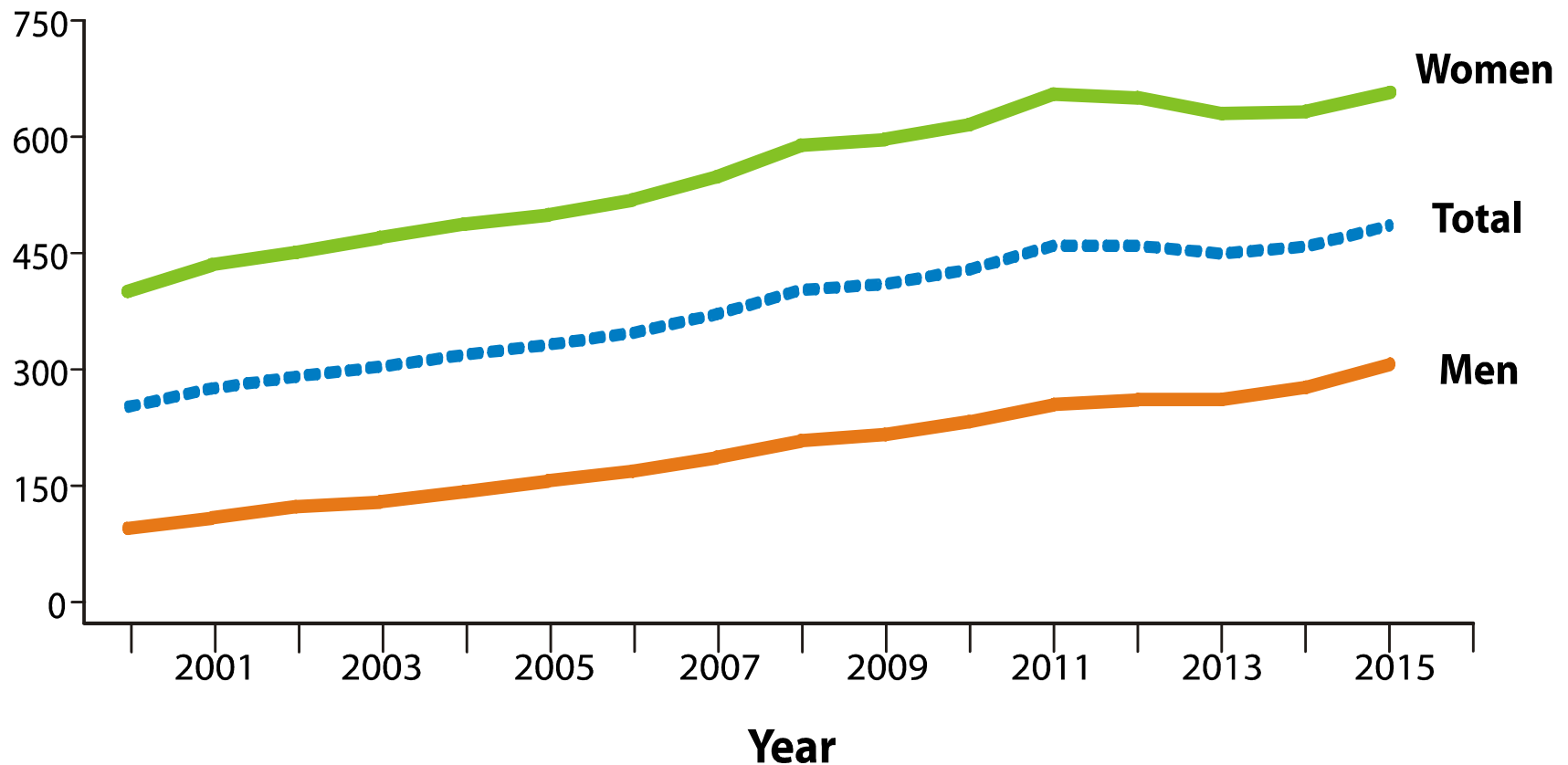
# Gonorrhea — Rates of Reported Cases by Region, United States, 2006–2015

Rate (per 100,000 population)



# Chlamydia — Rates of Reported Cases by Sex, United States, 2000–2015

Rate (per 100,000 population)

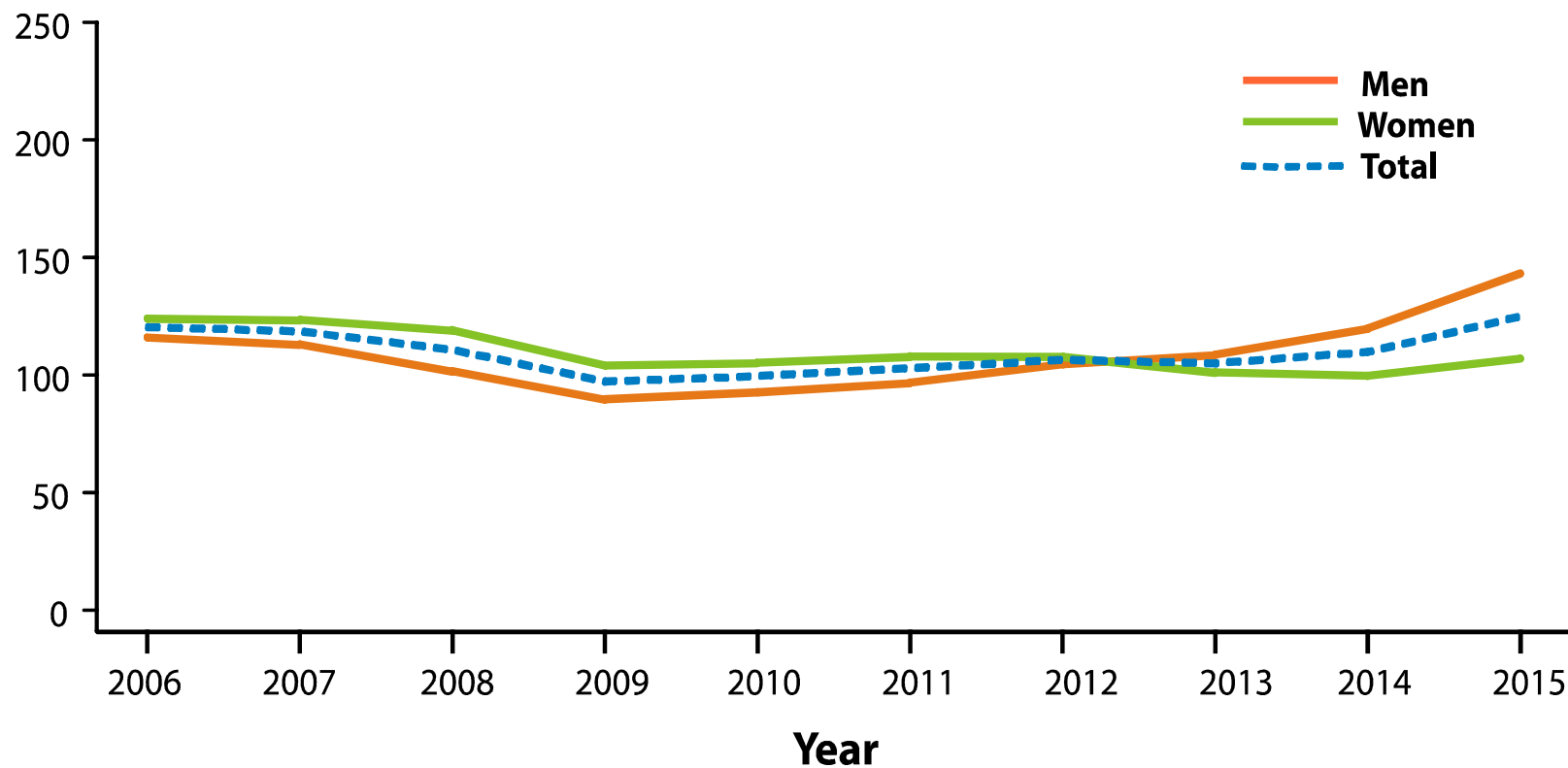


**NOTE:** Data collection for chlamydia began in 1984 and chlamydia was made nationally notifiable in 1995; however, chlamydia was not reportable in all 50 states and the District of Columbia until 2000. Refer to the National Notifiable Disease Surveillance System (NNDSS) website for more information: <https://wwwn.cdc.gov/nndss/conditions/chlamydia-trachomatis-infection/>.

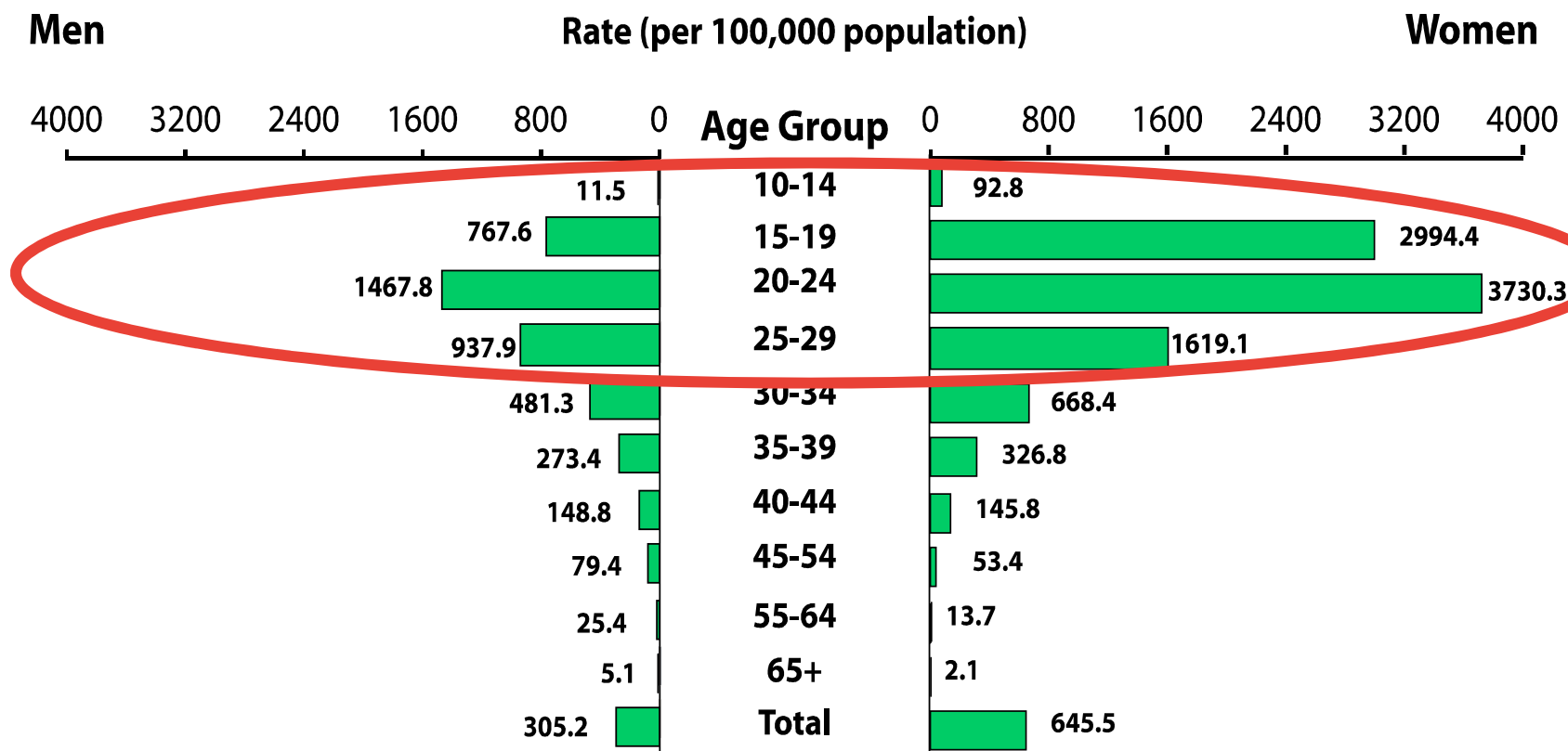


# Gonorrhea — Rates of Reported Cases by Sex, United States, 2006–2015

Rate (per 100,000 population)

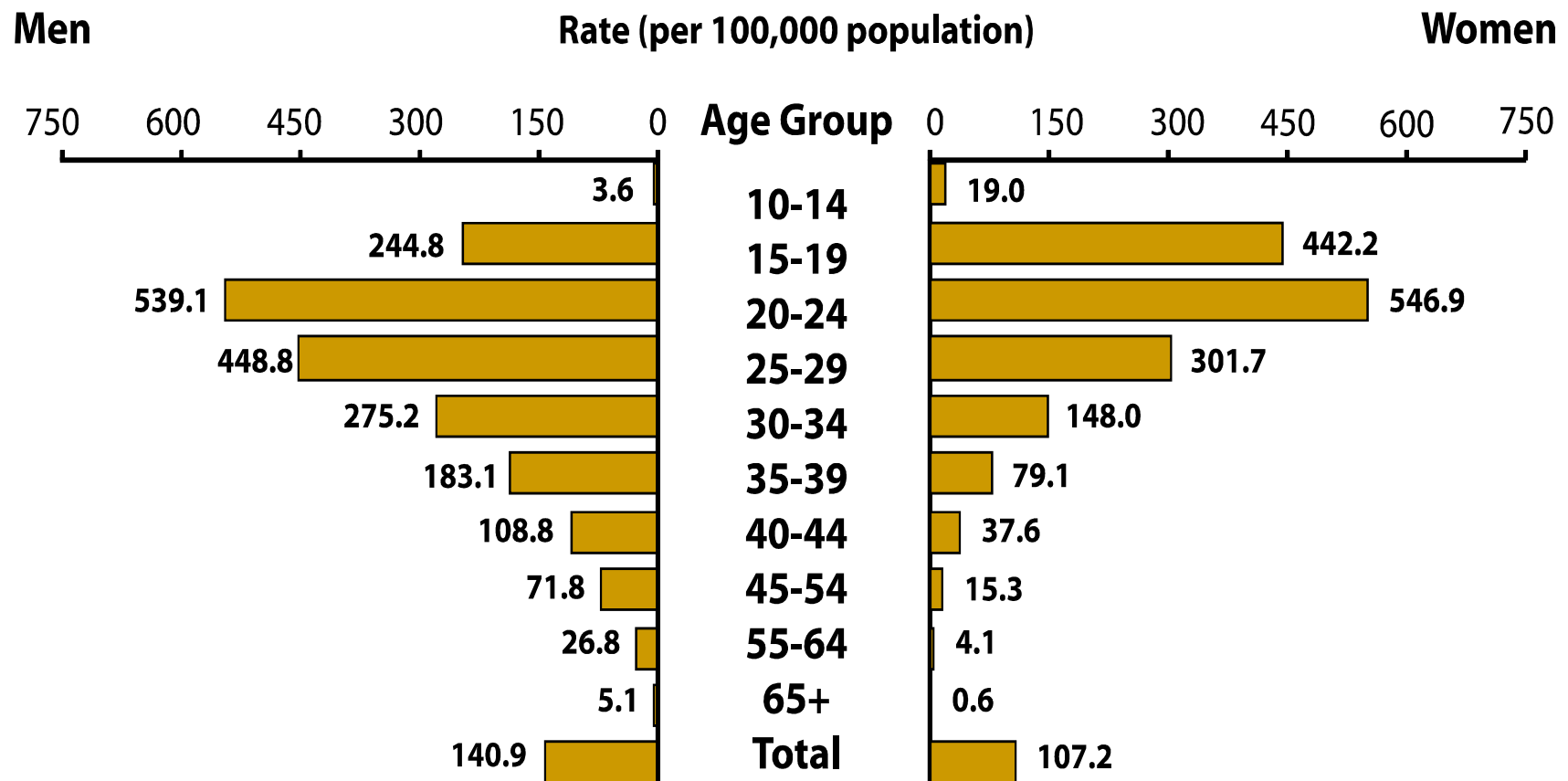


# Chlamydia — Rates of Reported Cases by Age Group and Sex, United States, 2015



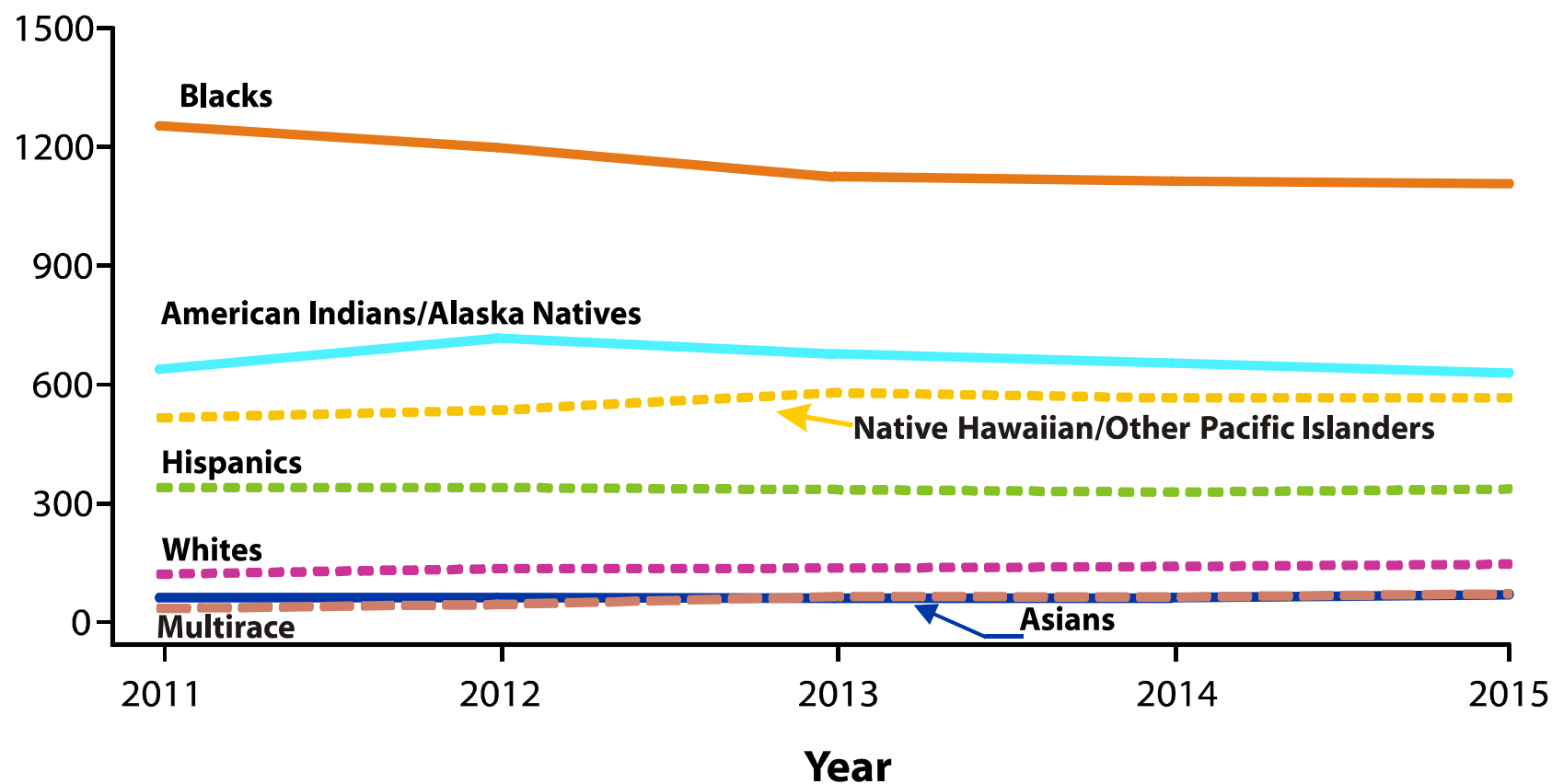


# Gonorrhea — Rates of Reported Cases by Age Group and Sex, United States, 2015



# Chlamydia — Rates of Reported Cases by Race/Ethnicity, United States, 2011–2015

Rate (per 100,000 population)

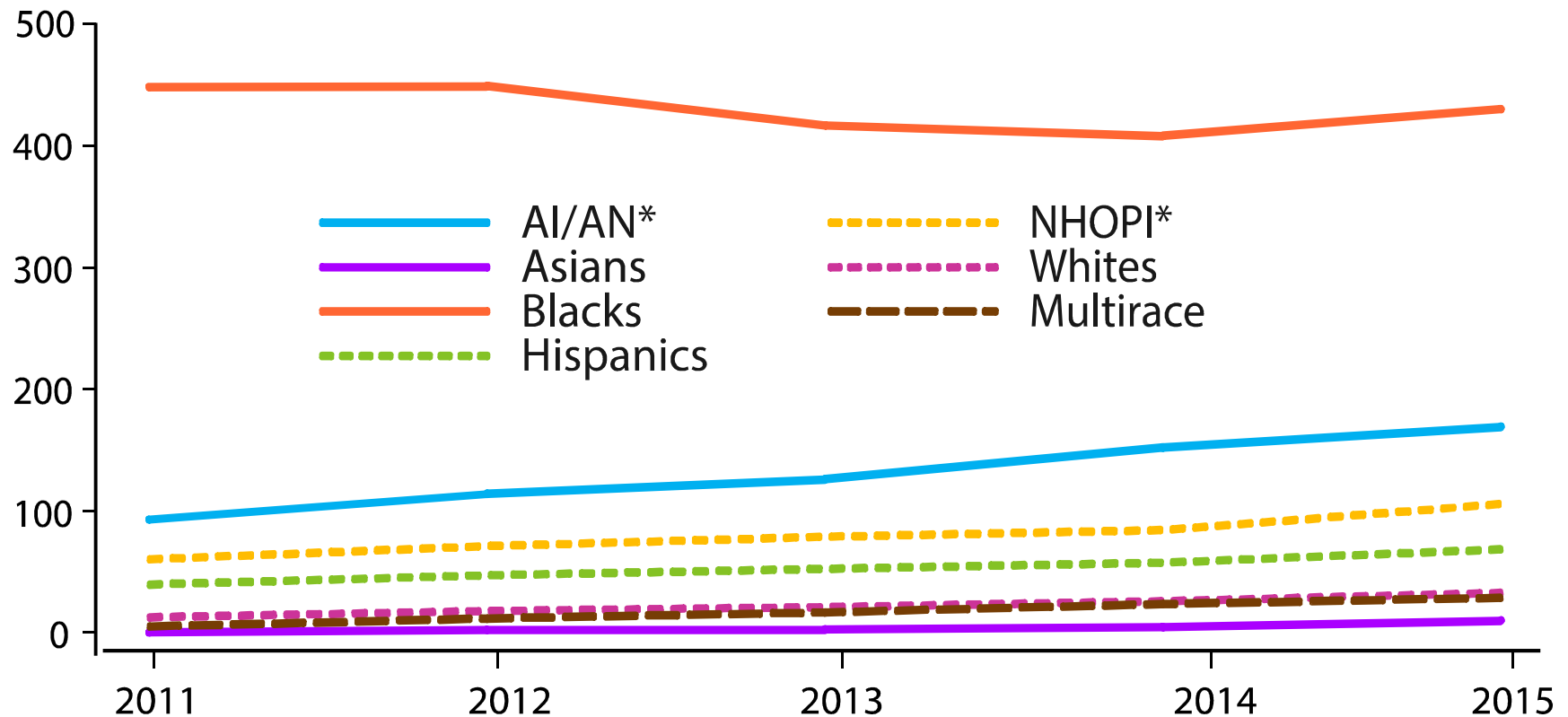


**NOTE:** Includes 45 states reporting race/ethnicity data in Office of Management and Budget compliant formats during 2011–2015.



# Gonorrhea — Rates of Reported Cases by Race/Ethnicity, United States, 2011–2015

Rate (per 100,000 population)



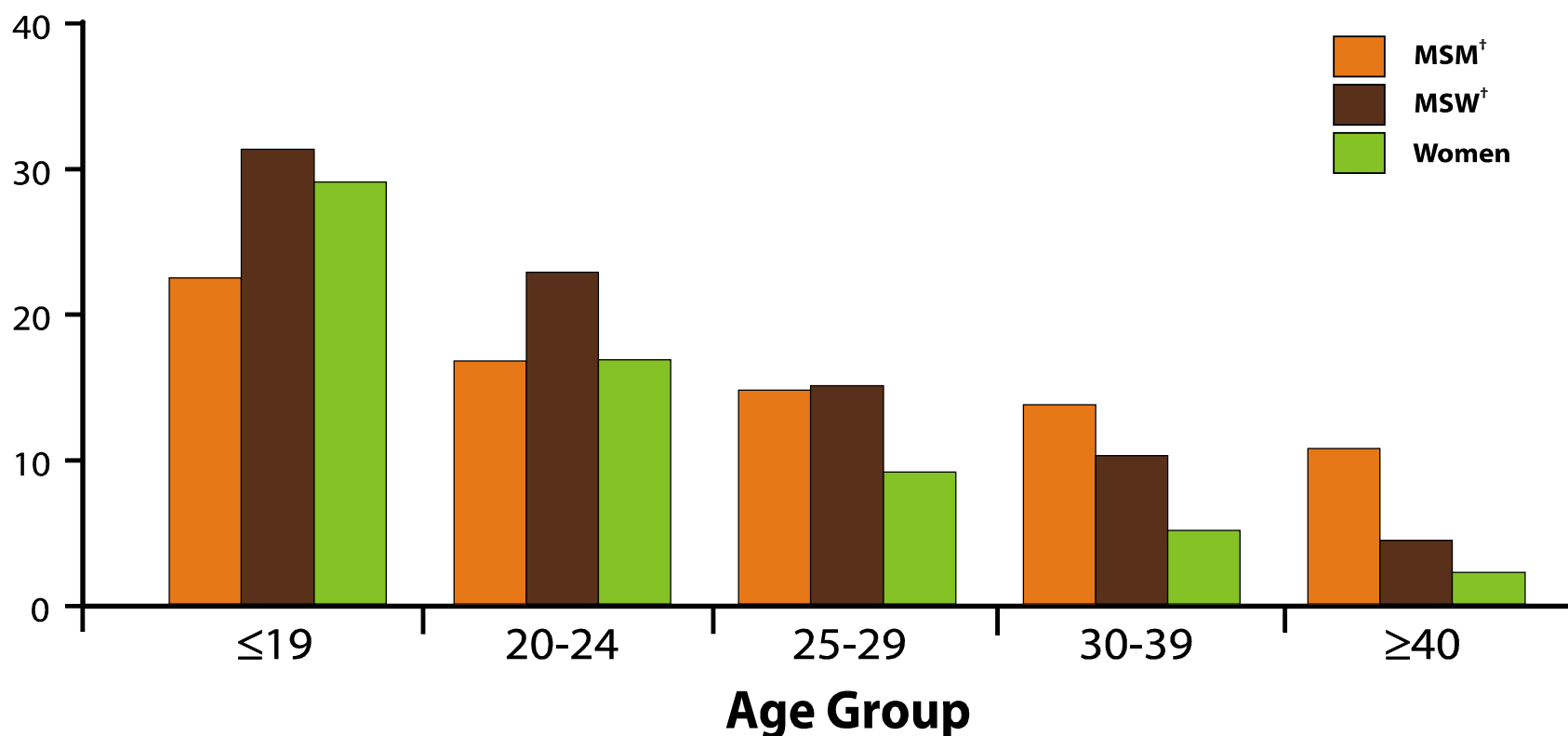
\* AI/AN = American Indian/Alaska Native; † NHOP = Native Hawaiian/Other Pacific Islander.

NOTE: Includes 45 states reporting race/ethnicity data in Office of Management and Budget compliant formats during 2011–2015.



# Chlamydia — Proportion of STD Clinic Patients Testing Positive\* by Age Group, Sex, and Sexual Behavior, STD Surveillance Network (SSuN), 2015

Percentage



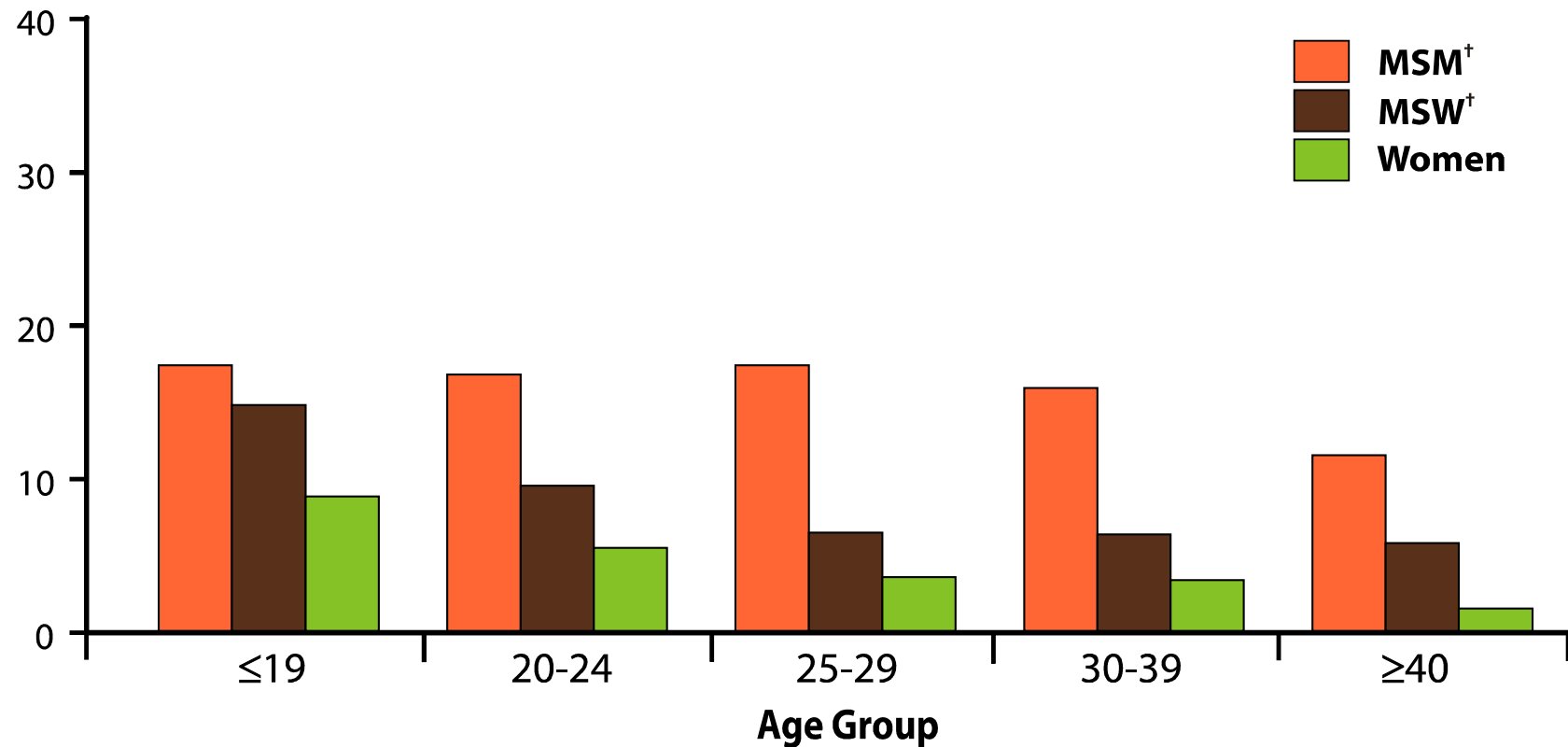
\* Results based on data obtained from patients (n=125,238) attending SSuN STD clinics in 2015 in all SSuN jurisdictions, excluding Minnesota.

† MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.



## Gonorrhea — Proportion of STD Clinic Patients Testing Positive\* by Age Group, Sex, and Sexual Behavior, STD Surveillance Network (SSuN), 2015

Percentage, %



\* Results based on data obtained from patients (n=124,441) attending SSuN STD clinics in 2015 in all SSuN jurisdictions, excluding Minnesota.

† MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.



# Pelvic Inflammatory Disease — Initial Visits to Physicians' Offices Among Women Aged 15–44 Years, United States, 2006–2014

Visits (in thousands)



**NOTE:** The relative standard errors for these estimates are 16% to 23%.

**SOURCE:** National Disease and Therapeutic Index, IMS Health, Integrated Promotional Services™, IMS Health Report, 1966–2014. The 2015 data were not obtained in time to include them in this report.



# **Should we Screen Women at Extra-genital Sites?**

Author	Study Population	Test Positivity	Isolated Rectal Infections	Screening strategy
Hunte, 2010	97 female STD clinic; Miami, FL	13.4% GC 17.5% CT	38% GC 6% CT	Report anal sex
Raychaudhuri, 2010	11,388 female STD Clinic; UK	0.5% GC	7% (12/180)	Unclear
Giannini, 2010	Adolescents; Retrospective; Cincinnati, OH	5.4% GC	1.9% R-GC	Unknown
Peters, 2011	4299 female STD Clinic; The Netherlands	0.35% R-GC	6.3% R-GC 3.4% R-CT	By sexual history
Javanbakht, 2012	2084 female STD Clinic; anal sex < 3 m		19% GC 25% CT	All women in study
Barry, 2010	1308, women; San Francisco STD		1.0% (increased case detected 14.8%)	All women receiving pelvic exams
Van Liere, 2014	1321 High Risk women; Netherlands	4.8% CT 0.9% GC	14.1% CT 4.9% GC	All high-risk women
Gratrix, 2015	1570 women Calgary, 1485 women Edmonton	Calgary: R-CT 11.7% Edmonton: 13.5% R-CT	Calgary: 46.6% RCT only Edmonton: 17.8% RCT only	Calgary: all women getting pelvic Edmonton: high risk women

**Increased  
Chlamydia  
Case Finding  
by 88%**